PATENT
Customer No. 32,127
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of:	)	
	)	
Eddie Huey Chiun Lin	)	Group Art Unit: 2153
	)	
Application No.: 09/533,148	)	Examiner: Yasin M. BARQADLE
	)	
Filed: March 23, 2000	)	
	)	
For: SYSTEM AND METHOD FOR IMPROVING TRAFFIC ANALYSIS AND NETWORK MODELING	)	

Mail Stop Appeal Brief -- Patents
Commissioner for Patents
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Sir:

APPEAL BRIEF UNDER 37 C.F.R. § 1.192

Appellant submits this Brief on Appeal in response to the final rejection of claims 1-25 in the Final Office Action dated November 17, 2003. Claims 1-31 are pending in this application, but the Examiner has withdrawn claims 26-31 from consideration. The Appendix contains the current state of these claims. In accordance with 37 C.F.R. § 1.192, this Brief is timely filed in triplicate subsequent to a corresponding Notice of Appeal filed on March 17, 2004, accompanied with the requisite fee of $330.00. If any additional fees are due, Appellant requests that these fees be charged to our Deposit Account No. 07-2347.

I. Real Party In Interest

The real parties in interest are **Genuity Inc** and **Verizon Corporate Services Group Inc**., as indicated by an assignment recorded on **December 27, 2002**, in Reel 13316 at Frame 571.

II. Related Appeals and Interferences

Appellant knows of no other related appeals or interferences that may have a bearing on the Board's decision in the current appeal.

III. Status Of Claims

Claims 1-31 were originally filed in this application. However, the Examiner has withdrawn claims 26-31 from consideration due to Applicant's election of claims 1-25 in response to a restriction requirement found in the Office Action of November 17, 2003. In that Office Action, the Examiner finally rejected claims 1-25 under 35 U.S.C. § 102(e) as anticipated by Feldmann (U.S. Patent Publication No. US 2002/021675 A1).

In an Advisory Action dated March 2, 2004, the Examiner refused to withdraw the final rejection of claims 1-25. Appellant accordingly appeals the final rejection of claims 1-25.

IV. Status Of Amendments

All claim amendments have been entered.

V. Summary Of Invention

The present invention facilitates the analysis of a communications network by allowing for an identification of the entry and exit routers for traffic flowing through a data network. Systems and methods disclosed by the present invention provide a mechanism by which a network designer may analyze the data network. A method for analyzing a data network having a plurality of routers includes accessing at least one of static routing information and route summarization information, determining if a particular network prefix is included in the accessed information, determining an identity of a network device based on an identity included in the accessed information corresponding to the network prefix, and analyzing the data network using the determined identity.

VI. Issues

The first issue on appeal is whether the rejection of claims 1-19 under U.S.C. § 102(e) is proper when the only applied reference fails to teach "accessing at least one of static routing information and route summarization information, determining if a particular network prefix is included in the accessed information, and determining an identity of a network device based on an identity included in the accessed information corresponding to the network prefix," as required by claims 1-19

The second issue on appeal is whether the rejection of claims 20-25 under U.S.C. § 102(e) is proper when the only applied reference fails to teach "accessing one or more of a border gateway protocol peering table, a static route table, an open shortest path first route summarization table, and a network topology table," "determining whether one or more of the accessed tables contains the network prefix,"

and "determining an identity of the network device using the accessed tables when at least one of the accessed tables is determined to contain the network prefix," as required by claims 20-25.

VII. Grouping Of Claims

In the claims on appeal, claims 1, 7, 8, 14, 20, 22, and 24 are the independent claims. The claims on appeal do not stand or fall together, but rather should be considered in two groups:

Group I: claims 1-19; and

Group II: claims 20-25.

VIII. Argument

A. Feldmann Does Not Teach Accessing Static Routing Information and Route Summarization Information, Determining if a Network Prefix is Included in the Accessed Information and Determining an Identity of a Network Device Based on an Identity Included in the Accessed Information Corresponding to the Network Prefix.

The Examiner rejected claims 1-25 under 35 U.S.C. § 102(e) as being anticipated by Feldmann (U.S. Patent Publication No. US 2002/021675 A1). Appellant respectfully requests the Board to reverse the rejection for the following reasons.

To properly anticipate Appellant's claimed invention, the Examiner must demonstrate the presence of each and every element of the claim in issue, either expressly described, or under principles of inherency, in a single prior art reference. Furthermore, "[t]he identical invention must be shown in as complete detail as is contained in the . . . claim." *See* M.P.E.P. § 2121 (8th ed., Aug. 2001), *quoting*

Richardson v. Suzuki Motor Co., 868 F.2d 1126, 1236, 9 U.S.P.Q.2d 1913, 1920 (Fed. Cir. 1989). Finally, "[t]he elements must be arranged as required by the claim." M.P.E.P. §2131 (8th ed. 2001), p. 2100-69.

Claim 1 recites a "method for analyzing a data network having a plurality of routers" comprising, among other things, "accessing at least one of static routing information and route summarization information, determining if a particular network prefix is included in the accessed information, and determining an identity of a network device based on an identity included in the accessed information corresponding to the network prefix." Feldmann does not disclose at least these elements of claim 1 and thus does not anticipate the claim.

Instead, Feldmann discloses a network-wide view of topology and configuration information in a packet-switched network. Feldmann discloses an abstract data model that comprises information relating to connectivity, addressing, and routing in the network. This data model is disclosed as being populated from various network information sources including router configuration files.

Regarding the element of "determining if a particular network prefix is included in the accessed information," the Examiner alleges that Feldmann discloses populating a data model from a number of network information sources, such as extracting information from a collection of router configuration files and where each section of the configuration file is read and parsed in a pre-specified order reflecting the dependencies within a single configuration file and across multiple configuration files (See Final Office Action, page 3). The Examiner further alleges that Feldmann teaches constructing a forwarding table that consists of information combined from intradomain routing protocol

information such as OSPF and interdomain reachability information from static routes and BGP. While Feldmann discloses populating a data model and retrieving information by accessing multiple sources of information, such activity does not constitute "determining if a particular network prefix is included in the accessed information," as recited in claim 1.

The Examiner also alleges that Feldmann discloses that a router combines information from various sources to construct a forwarding table that is used to select a next-hop interface for packets arriving at the interface (Final Office Action, page 4). Although this teaching of Feldmann may suggest determining if a next-hop interface is included in a forwarding table, it does not constitute "determining if a particular network prefix is included in the accessed information," as recited in claim 1. Therefore, for at least this reason, the Board should reverse the rejection of claim 1.

Additionally, Feldmann does not disclose at least "determining an identity of a network device based on an identity included in the accessed information corresponding to the network prefix," as recited in claim 1. The Examiner alleges this element is taught by Feldmann because Feldmann teaches that neighboring routers exchange traffic over links and each link is identified by an IP prefix, and each participating interface has a unique IP address associated with its prefix (Final Office Action, page 6). Even if the Examiner's characterization of Feldmann is correct, such characterization does not constitute "determining an identity of a network device based on an identity included in the accessed information corresponding to the network prefix," as recited in claim 1.

As discussed above, the Examiner has alleged that the claimed "accessed information" is present in Feldmann in the form of the forwarding table, which is

maintained in the router itself. Although Feldmann may disclose routers exchanging traffic over links identified by IP prefixes (See paragraph 0030), Feldmann does not teach or suggest "determining an identity of a network device based on an identity included in the accessed information corresponding to the network prefix," as recited in claim 1.

Furthermore, in the Advisory Action dated March 2, 2004, the Examiner alleged that Feldmann discloses determining if a particular network prefix is included in the accessed information, citing paragraphs 0030-0031 on page 3. The Examiner asserted that Feldmann shows an example of a particular network prefix in his data model that identifies a link of neighboring routers with a prefix. Appellants respectfully disagree with the Examiner's characterization and submit that these paragraphs do not teach the above-identified elements recited in claim 1.

In particular, paragraph 0030 describes that each link may be identified by an IP prefix, and that each participating interface has a unique IP address with the prefix. Paragraph 0030 also discloses that addresses, such as 10.34.45.76 and 10.34.56.79 are reserved for a network address and a broadcast address, respectively. Further, these addresses can be used to identify the two ends of a bi-directional, point-to-point link. In sum, paragraph 0030 thus discloses that neighboring routers may exchange traffic over links, and that each link may be identified by an IP prefix. Such disclosure, however, does not constitute a teaching or suggestion of "accessing at least one of static routing information and route summarization information" or "determining an identity of a network device based on an identity included in the accessed information corresponding to the network prefix," as recited in claim 1 (emphasis added).

In the Advisory Action, the Examiner also cited paragraphs 0034-0035, page 3 of Feldmann, alleging that the reference provides an example of determining a particular network prefix in a forwarding table of a static route. These paragraphs, however, merely disclose that each static-route object concerns a particular prefix that is associated with a set of interfaces. In addition, the configuration of a static route ensures that the router knows to direct packages destined to the prefix to the appropriate next-hop interface. See paragraph 0034. These paragraphs, however, do not constitute a teaching or suggestion of the exemplary recitations of claim 1 set forth above. For at least these additional reasons, the Board should reverse the rejection of claim 1.

Independent claims 7, 8, and 14, while of a different scope, include similar recitations to that of claim 1. Appellant respectfully submits that independent claims 7, 8, and 14 are allowable over Feldmann for at least the reasons discussed above in relation to claim 1. Appellant further submits that claims 2-6, 9-13, and 15-19, which depend from independent claims 1, 8, and 14 are allowable at least due to their dependence from their corresponding allowable independent claims.

B. Feldmann Does Not Teach Accessing a Border Gateway Protocol Peering Table, a Static Route Table, an Open Shortest Path First Route Summarization Table, and a Network Topology Table, Determining Whether the Accessed Tables contain the Network Prefix and Determining an Identity of the Network Device Using the Accessed Tables When at Least One of the Accessed Tables is Determined to Contain the Network Prefix.

Claim 20 recites a "method for determining an identity of a network device, the network device being associated with a network prefix," including, among other things,

"accessing one or more of a border gateway protocol peering table, a static route table, an open shortest path first route summarization table, and a network topology table," "determining whether one or more of the accessed tables contains the network prefix," and "determining an identity of the network device using the accessed tables when at least one of the accessed tables is determined to contain the network prefix." Feldmann does not disclose at least these features and thus does not anticipate the claim.

In the Final Office Action, the Examiner alleged that Fig. 5 discloses static routes that associate destination prefixes with a particular interface (Final Office Action, page 8). While Feldmann may disclose in Fig. 5 a router section with entries for various protocols, such as OSPF, BGP, and static routes, such disclosure does not constitute a teaching or suggestion of "determining whether one or more of the accessed tables contains the network prefix," as recited in claim 20. Further, such disclosure does not constitute a teaching or suggestion of "determining an identity of the network device using the accessed tables when at least one of the accessed tables is determined to contain the network prefix," as also recited in claim 20.

In addition, paragraph 0030 discloses that neighboring routers may exchange traffic overlinks, and that each link may be identified by an IP prefix. Paragraphs0031-0034 describe that each link object may be defined by an IP prefix andan attribute. Additionally, each autonomous system may employ a routing protocol, such as OSPF, and a general overview of static routes is disclosed. However, these paragraphs also do not set forth a teaching or suggestion of the above features of claim 20. Accordingly, Feldmann does not anticipate claim 20 for at least these reasons.

Appellant respectfully submits that independent claims 22 and 24, which include similar recitations to those of claim 20, are allowable over Feldmann for at least the reasons discussed above. Appellant further respectfully submits that claims 21, 23, and 25, which depend from independent claims 20, 22, and 24 are allowable at least due to their dependencies. Accordingly, the Board should reverse the rejection of claims 20-25.

Conclusion

For the reasons given above, Appellant requests that the Board of Patent Appeals and Interferences reverse the Examiner's final rejections of claims 1-25.

To the extent any extension of time under 37 C.F.R. § 1.136 is required to obtain entry of this Appeal Brief, such extension is hereby respectfully requested. If there are any fees due under 37 C.F.R. §§ 1.16 or 1.17 which are not enclosed herewith, including any fees required for an extension of time under 37 C.F.R. § 1.136, please charge such fees to our Deposit Account No. 07-2347.

Respectfully submitted,

Dated: May 17, 2004

By: _____
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APPENDIX

1. A method for analyzing a data network having a plurality of routers comprising:

accessing at least one of static routing information and route summarization information;

determining if a particular network prefix is included in the accessed information;

determining an identity of a network device based on an identity included in the accessed information corresponding to the network prefix; and

analyzing the data network using the determined identity.

2. The method of claim 1 wherein the accessing includes:

accessing at least one of a static routing table and an open shortest path first route summarization table.

3. The method of claim 1 wherein the determining includes:

determining router information, interface information, and association information for the network prefix.

4. The method of claim 1 wherein the analyzing includes:

analyzing traffic of the data network.

5. The method of claim 1 wherein the analyzing includes:

modeling the data network.

6. The method of claim 1 wherein the determining includes:

determining an identity of an exit or entry router in the data network.

7. A system for analyzing a data network having a plurality of routers, said system comprising:

means for accessing at least one of static routing information and route summarization information;

means for determining if a particular network prefix is included in the accessed information;

means for determining an identity of a network device based on an identity included in the accessed information corresponding to the network prefix; and

means for analyzing the data network using the determined identity.

8. A system for analyzing a data network, said system comprising:

a memory configured to store information representing static routing information and route summarization information; and

a processor configured to:

access at least one of the static routing information and the route summarization information;

determine if a particular nework prefix is included in the accessed information;

determine an identity of a network device based on an identity included in the accessed information corresponding to the network prefix; and

analyze the data network using the determined identity.

9. The system of claim 8 wherein, when accessing, the processor is configured to:

access at least one of a static routing table and an open shortest path first route summarization table.

10. The system of claim 8 wherein, when determining, the processor is configured to:

determine router information, interface information, and association information for the network prefix.

11. The system of claim 8 wherein, when analyzing, the processor is configured to:

analyze traffic of the data network using the determined identity.

12. The system of claim 8 wherein, when analyzing, the processor is configured to:

model the data network using the determined identity.

13. The system of claim 8 wherein, when determining, the processor is configured to:

determine an identity of an exit or entry router in the data network.

14. A computer-readable medium containing instructions for controlling at least one processor to perform a method that analyzes a data network having a plurality of routers, the method comprising:

accessing at least one of static routing information and route summarization information from a router;

determining if a particular network prefix is included in the accessed information;

determining an identity of a network device based on an identity included in the accessed information corresponding to the network prefix; and

analyzing the data network using the determined identity.

15. The computer-readable medium of claim 14 wherein the accessing includes:

accessing at least one of a static routing table and an open shortest path first route summarization table.

16. The computer-readable medium of claim 14 wherein the determining includes:

determining router information, interface information, and association information for the network prefix.

17. The computer-readable medium of claim 14 wherein the analyzing includes:

analyzing traffic of the data network.

18. The computer-readable medium of claim 14 wherein the analyzing includes:

modeling the data network.

19. The computer-readable medium of claim 14 wherein the determining includes:

determining an identity of an exit or entry router in the data network.

20. A method for determining an identity of a network device, the network device being associated with a network prefix, the method comprising:

accessing one or more of a border gateway protocol peering table, a static route table, an open shortest path first route summarization table, and a network topology table;

determining whether one or more of the accessed tables contains the network prefix; and

determining an identity of the network device using the accessed tables when at least one of the accessed tables is determined to contain the network prefix.

21. The method of claim 20 wherein the determining an identity includes:

determining router information, interface information, and association information.

22. A system for determining an identity of a network device, the network device being associated with a network prefix, the system comprising:

a memory configured to store one or more of a border gateway protocol peering table, a static route table, an open shortest path first route summarization table, and a network topology table; and

a processor configured to:

access, from the memory, one or more of the border gateway protocol peering table, the static route table, the open shortest path first route summarization table, and the network topology table;

determine whether one of the accessed tables contains the network prefix; and

determine an identity of the network device using the accessed tables when at least one of the accessed tables is determined to contain the network prefix.

23. The system of claim 22 wherein, when determining an identity, the processor is configured to:

determine router information, interface information, and association information.

24. A computer-readable medium containing instructions for controlling at least one processor to perform a method that determines an identity of a network

device, the network device being associated with a network prefix, the method comprising:

accessing, from a router, one or more of a border gateway protocol peering table, a static route table, an open shortest path first route summarization table, and a network topology table;

determining whether one of the accessed tables contains the network prefix; and

determining an identity of the network device using the accessed tables when at least one of the accessed tables is determined to contain the network prefix.

25. The computer-readable medium of claim 24 wherein the determining an identity includes:

determining router information, interface information, and association information.

26. A method for determining an identity of a network device in an autonomous system using a network prefix, comprising:

determining whether the network prefix is included in a static routing table;

setting the identity of the network device to an identity in the static routing table that corresponds to the network prefix if it is determined that the network prefix is included in the static routing table;

determining whether the network prefix is included in an Open Shortest Path First (OSPF) route summarization table; and

setting the identity of the network device to an identity in the Open Shortest Path First (OSPF) route summarization table that corresponds to the network prefix if it is

determined that the network prefix is included in the Open Shortest Path First (OSPF) route summarization table.

27. The method of claim 26, wherein the network device is a router and wherein the setting of the identity of the network device to an identity in the static routing table includes:

setting the identity of the network device to an identity in a static route configured field.

28. The method of claim 26 wherein the network device is an interface and wherein the setting of the identity of the network device to an identity in the static routing table includes:

setting the identity of the network device to an identity in an exit interface field.

29. The method of claim 26, wherein the network device is a router and wherein the setting of the identity of the network device to an identity in the Open Shortest Path First (OSPF) route summarization table includes:

setting the identity of the network device to an identity in a route summarization configured field.

30. The method of claim 26, further comprising:

determining whether the network prefix is included in a network topology table;

setting the identity of the network device to an identity in the network topology table that corresponds to the network prefix if it is determined that the network prefix is included in the network topology table.

31. The method of claim 30, wherein the network device is a router and wherein the setting of the identity of the network device to an identity in the network topology table includes:

setting the identity of the network device to an identity in a router field.